WHAT IS CLAIMED IS:

1.   For use in an information processing system including a host computer, a main storage apparatus system, and a sub-storage apparatus system which is electrically connected to said main storage apparatus system, a method of carrying out back-up of the data from said main storage apparatus system to said sub-storage apparatus system, comprising the steps of:

sending an instruction to maintain the state of the data in said main storage apparatus system from said host computer to said main storage apparatus system;

maintaining the state of the data in said main storage apparatus system at a time point when said instruction has been issued; and

structuring the data, which said main storage system has at a time point when said instruction has been issued, on said sub-storage apparatus system on the basis of the maintained data.

2.   A data backup method according to claim 1, wherein said step of structuring the data further comprises the steps of:

transferring the maintained data in said main storage apparatus system to said sub-storage apparatus system;

after completion of the transfer of the maintained data, transferring a signal exhibiting the completion of the transfer from said main storage

apparatus system to said sub-storage apparatus system; and

with the reception of the signal exhibiting the completion of the transfer as a turning point, structuring the data on said sub-storage apparatus system.

3.   A data backup method according to claim 2, further comprising the step of:

keeping the storage of the data in a first storage area of said main storage apparatus system until said host computer has issued the instruction,

wherein said step of maintaining the state of the data is, after said host computer has issued the instruction, to copy the data stored in said first storage area at a time point of the issue of the instruction to a second storage area of said main storage apparatus system, and

wherein said step of transferring the data is to transfer the data which has been copied to said second storage area to said sub-storage apparatus system.

4.   A data backup method according to claim 3, wherein said step of structuring the data is to store the maintained data which has been transferred in a third storage area of said sub-storage apparatus system to structure the maintained data in a fourth storage area of said sub-storage apparatus system using the data held in said third storage area.

5.   A data backup method according to claim 4, wherein the data which was stored in said first storage area at a predetermined time point before the issue of the instruction from said host computer is stored in said fourth storage area.

6.   A data backup method according to claim 2, wherein said step of transferring the data is to transfer the difference between the data which was stored in said main storage apparatus system before the issue of the instruction from said host computer and the maintained data at a time point when said host computer has issued the instruction.

7.   A data backup method according to claim 6, wherein said step of maintaining the data further comprises the steps of:

storing the data in said first storage area of said main storage apparatus system;

if when updating the data which is stored in said first storage area on and after said host computer has issued the instruction, the difference has already been sent to said sub-storage apparatus system on the basis of said step of sending the difference, storing the data in said first storage area; and

if the difference is not yet sent to said sub-storage apparatus system, storing the information of the data to be updated in said second storage area of said main storage apparatus system.

8.   A data backup method according to claim 7,

wherein said step of structuring the data further comprises the steps of:

holding the difference, which has been sent from said main storage apparatus system, in said third storage area of said sub-storage apparatus system; and

on the basis of the difference held in said third storage area, structuring the maintained data in said fourth storage area of said sub-storage apparatus system.

9.   A data backup method according to claim 8, wherein the data which was stored in said first storage area at a predetermined time point before the issue of the instruction from said host computer is stored in said fourth storage area.

10.   A data backup method according to claim 2, wherein said transfer step further comprises the steps of:

transferring the data, which is stored in said first storage area and which is to be updated, to said sub-storage apparatus system until said host computer has issued the instruction; and

after said host computer has issued the instruction, transferring the data stored in said second storage area to said sub-storage apparatus system.

11.   A storage apparatus system, comprising:

a main storage apparatus system which has a first storage area, a second storage area and a main

disk controller and which is electrically connected to a host computer; and

a sub-storage apparatus system which has a third storage area, a fourth storage area and a sub-disk controller and which is electrically connected to said main storage apparatus system,

wherein said main disk controller has:

means for recording the data, which has been sent from said host computer, in said first storage area until said host computer has issued an instruction for freezing;

means for in response to the freezing instruction issued from said host computer, copying the data which has been recorded in said first storage area to said second storage area; and

means for sending the copied data to said sub-storage apparatus system, and

wherein said sub-disk controller has:

means for receiving the data sent thereto to hold the data thus received in said third storage area; and

means for structuring the data, which is held in said first storage area at a time point when said host computer has issued the freezing instruction, in said fourth storage area using the data held in said third storage area.

12.   A storage apparatus system, comprising:

a main storage apparatus system which has a

first storage area, a second storage area and a main disk controller and which is electrically connected to a host computer; and

a sub-storage apparatus system which has a third storage area, a fourth storage area and a sub-disk controller and which is electrically connected to said main storage apparatus system,

wherein said main disk controller has:

means for recording therein the data, which has been sent from said host computer, in said first storage area until said host computer has issued an instruction for freezing;

means for sending a difference between the data which is stored in said first storage area at a predetermined time point and the data which is recorded to said sub-storage apparatus system;

means for in response to the freezing instruction issued from said host computer, with respect to writing of the data to said first storage area by said host computer, when the difference between the data each becoming an object has already been sent to said sub-storage apparatus system, writing the data to said first storage area; and

means for when the difference between the data each becoming an object is not yet sent to said sub-storage apparatus system, writing the data to said second storage area, and

wherein said disk controller has:

means for receiving the difference sent thereto to hold the difference thus received in said third storage area; and

means for structuring the data, which is held in said first storage area at a time point when said host computer has issued the freezing instruction, in said fourth storage area using the difference held in said third storage area.

13.   A storage apparatus system, comprising:

a main storage apparatus system which has a first storage area, a second storage area and a main disk controller and which is electrically connected to a host computer; and

a sub-storage apparatus system which has a third storage area, a fourth storage area and a sub-disk controller and which is electrically connected to said main storage apparatus system,

wherein said main disk controller has:

means for recording therein the data, which has been sent from said host computer, in said first storage area until said host computer has issued an instruction for freezing;

means for sending the data stored in said first storage area to said sub-storage apparatus system;

means for in response to the freezing instruction issued from said host computer, copying the data stored in said first storage area to said second

storage area; and

means for sending the copied data to said sub-storage apparatus system, and

wherein said sub-disk controller has:

means for receiving both of the data which has been sent to be stored in said first storage area and the copied data to hold both of the data in said third storage area; and

means for structuring the data, which is held in said first storage area at a time point when said host computer has issued the freezing instruction, in said fourth storage area using the data stored in said third storage area.

14. A storage apparatus system according to claim 13, wherein said main disk controller has means for sending a signal showing, that the data has been sent, to said sub-storage apparatus system, and

wherein said sub-disk controller has means for after having received the signal showing that the data has been sent, structuring the data which is held in said first storage area in said fourth storage area.

15. A storage apparatus system according to claim 14, wherein said main disk controller has means for when sending the data to said sub-storage apparatus system, encrypting the data of interest, and

wherein said sub-disk controller has means for decoding the encrypted data which has been received from said main storage apparatus system.

16.   A storage apparatus system according to claim 15, wherein the data which was stored in said first storage area at a predetermined time point before the issue of the instruction from said host computer is stored in said fourth storage area.